REMARKS

Claims 1-10 and 16-29 are presented, and none have been amended in this response. Claims 11-15 are canceled without prejudice.

Examiner relies heavily in the rejection of the claims of this application on the Breed reference (US 5,684,701); but there are many portions of this reference in which the teachings described by Examiner as supporting the rejections are not present as Examiner alleges.

A

In the Abstract, Examiner allegedly finds a teaching of "an object detector configured...to monitor a position of an object relative to the vehicle" and "a deployment device...configured...to deploy a reversible physical safety countermeasure" and "deploying...a safety countermeasure...before the collision." But an examination of the Abstract shows that there are no such teachings to be found therein and, in fact, the actual teaching is quite different. The Abstract reads as follows:

> A sensor system for initiating deployment of an occupant protection apparatus in a motor vehicle, such as an airbag, to protect an occupant of the vehicle in a crash. The system includes a sensor mounted to the vehicle for sensing accelerations of the vehicle and producing an analog signal representative thereof; an electronic converter for receiving the analog signal from the sensor and for converting the analog signal into a digital signal, and a processor which receives the digital signal. The processor includes a pattern recognition system and produces a deployment signal when the pattern recognition system determines that the digital signal contains a pattern characteristic of a vehicle crash requiring occupant protection. A deployment initiation mechanism is coupled to the processor and, responsive to the deployment signal, initiates deployment of the occupant protection apparatus.

(1) The only sensor mentioned herein is a standard crash sensor: an accelerometer mounted to the vehicle for measuring accelerations experienced by a portion of the vehicle that is the first to experience high accelerations in a crash. Such a sensor is inherently capable only of detecting <u>a crash in progress</u> and is incapable of sensing a likelihood of a collision <u>before</u> the collision takes place.

(2) The only pattern recognition performed on an acceleration signal from a crash sensor is a pattern study of the acceleration and other movement characteristics of that part of the vehicle itself (speed, jerk, etc.) over time to determine if the accelerations demonstrate a pattern characteristic of a vehicle crash in progress. The Abstract is very clear that the analysis and protection are for determination of a crash <u>in progress</u> and protection of vehicle occupants <u>during a crash in progress</u>.

(3) By the time that a crash in progress is sensed through a vehicle mounted accelerometer, it is too late to deploy <u>reversible</u> physical safety countermeasures. Inflatable restraints (irreversible as defined by applicant in this application) are the only devices having the speed to provide any significant protection in the milliseconds available.

(4) There is no hint whatever of any sensing or monitoring of an <u>object external and not in contact with the vehicle</u>. And the use of the pattern recognition system does not imply any such thing. A reasonable interpretation of the Abstract language is that the software capable of pattern recognition may be applied to doing so in the vehicle acceleration signal described above in paragraph (2); but this is concerned only with the vehicle itself and has nothing to do with an external object not in contact with the vehicle.

B

The second of these portions actually consists of several places wherein Examiner allegedly finds a teaching of the use of a vehicle braking

system as a physical safety countermeasure. In fact, Breed does not in any way describe a braking system or describe how it would be deployed in response to a crash anticipating sensor. A keyword search in the total Breed reference for any word beginning with the letter combination "brak" (which would find any variation on the words "brake" or "braking") results in only two hits. The first is in the Brief Description of the Drawings (col. 32-37):

> FIG. 4 is a perspective view of an automobile, as viewed partially from above, of a side impact anticipatory sensor system using the same computer as the single point crash sensor and also showing inputs from a front mounted crush zone sensor, an engine speed sensor, and an antilock braking system sensor.

The second is found in column 9, lines 46-52:

> FIG. 4 also illustrates additional inputs which, in some applications, provide useful information in determining whether an airbag should be deployed, for example. These include inputs from a front mounted crash sensor 420 mounted on the vehicle radiator 430, an engine speed sensor 440, and a wheel speed sensor 450 as used in the antilock braking system.

In addition, FIG. 4, the "sensor" Figure, shows an unlabeled box with a reference number 440, the wheel speed sensor referred to in the text.

Since these references to "braking" are the only such references in the entire document, one can easily see that they exist only to provide a home for a wheel speed sensor, which is included as a signal generator from which vehicle speed may be obtained. What is clearly not present in these passages is the slightest hint that the brakes themselves are to be used as a physical safety countermeasure in response to a crash anticipating system.

C

The third of these portions is found in column 4, lines 64-67. Examiner alleges that this passage of Breed discloses "a plurality of location

coordinates." In so stating, Examiner is applying the Breed reference against claim 25 (the only claim to use this phrase); and this claim recites:

> The method of claim 11, wherein said sensing includes calculating a <u>plurality of location coordinates</u> and times of arrival <u>of the vehicle</u> at each of the coordinates.

It is clear from this claim that the phrase "location coordinates" refers to specific projected <u>locations of the vehicle</u>. The passage in Hu relied on by Examiner discloses the following:

> ...an SDM 120 containing a single point crash sensor comprising a tri-axial accelerometer 122, an analog to digital converter 124 and a pattern recognition algorithm contained within a microprocessor 130. A tri-axial accelerometer is a device which includes three accelerometers and measures accelerations in three orthogonal directions....

Examiner is assumed to be referring to the accelerometers measuring in three orthogonal directions. But the accelerometers are disclosed as a "crash sensor," which is well known in the art to produce acceleration signals. Accelerations are not "location coordinates' as described by applicant.

D

In addition, Examiner similarly relies on several portions of the Hu reference (US 6,883,631) that allegedly teach specific things that applicant cannot find in those passages. The first of these portions is column 2, lines 1-45, in which Examiner claims that Hu discloses "calculating a decision rating based upon an average of the factors." Applicants are unable to find any such disclosure in the cited passage. In fact, the cited passage is mostly devoted to a description of physical components such as sensor 26, air bag inflator module 22 and gas generator modules 28 and does not describe any decision making process. The closest it comes to any decision making process is a statement in lines 9-16, concerning the mounting of sensor 26, that it has a field of view

allowing it to see an object at a distance sufficient to give it time to make a decision about that object before it is to late to do anything about it. But it says nothing about "calculating a decision rating based on an average of the factors." In fact, a word search reveals that the word "average" does not appear anywhere in the entire document.

E

The next portion of Hu that is incorrectly described is column 2, lines 7-15, which Examiner states as disclosing "the factors include at least one of an offset from lane center missed distance." This is part of the same passage discussed in the previous paragraph, and applicant repeats that there is no discussion whatsoever of any decision making process or any factors involved in this passage. In particular, there is no discussion therein of any of a "lane center missed distance," or of a "ratio of projected lateral movement to required lateral movement," or of a "radius of curvature of the vehicle," or of "a projected Y intercept," as defined by applicant in this application. In fact, a word search of the Hu reference does not find a single instance of any of the following words: "lane," "missed," "ratio," "radius," "curvature," "projected" or "intercept." The word "distance" is found only once – in the cited passage referring to the distance from the sensor to the object, which is not the "lane center missed distance" or any other of the factors as defined and recited by applicant. The word "center" occurs several times but only in the phrase "center of gravity" of the vehicle, which is also not the same as any of applicant's defined and recited factors.

Thus, any claim rejection relying on one or more of the above-identified passages of the Breed or Hu references relative to applicant's is based on inadequate support and should be withdrawn. The presented claims will be identified below with reference to the preceding specific items identified by bold letters **A – E** and additional numbers in parentheses **(1)**, **(2)**, etc. where needed.

The rejection of **claim 1** is defective because Examiner's cited passage in Breed fails to disclose "an object detector configured to be installed in a motor vehicle and to monitor a position of an object relative to a vehicle." **[A(1), A(2), A(4)]** It is further defective because Examiner's cited passage in Breed fails to disclose "a processor in communication with said object detector and configured to be installed within the vehicle and to determine a likelihood of a collision between the vehicle and the object based upon data received from the object detector and a calculated future path of the vehicle." In fact, the cited passage discloses only a standard accelerometer crash sensor that senses a crash in progress. **[A(1), A(2), A(4)]** It is further defective because Examiner's cited passage in Breed fails to disclose "a deployment device in communication with said processor and configured to be installed within the vehicle and to deploy a reversible physical safety countermeasure before the collision occurs if said processor determines that the collision is likely." In fact, the described accelerometer crash sensor is incapable of deploying anything before the collision occurs and the passage does not disclose the deployment of a reversible physical safety countermeasure at all. **[A(1), A(2), A(3), A(4)]**

The rejection of **claim 2** shares the defects of the rejection of its independent parent claim 1.

The rejection of **claim 3** shares the defects of the rejection of its parent claim 1 and is further defective because Examiner's cited Abstract in Breed fails to disclose applicant' cited configuration to: "deploy an irreversible physical safety countermeasure before the collision occurs if said processor determines that the collision is likely within a first time period after a present time." **[A(1), A(2), A(4)]** and further because Examiner's cited Breed column 9, lines 42-52 fail to disclose applicant's recited configuration to: "deploy a reversible physical safety countermeasure before the collision occurs if said processor determines that the collision is likely within a second time period after the present time." **[A(1), A(2), A(3), A(4)]**

The rejections of **claims 4 – 10** share the defects of the rejection of their independent parent claim 1.

Claims 11 – 15 are canceled.

The rejection of **claim 16** is defective because Examiner's cited passage in Breed fails to disclose the step of "providing an <u>object detector</u> within the vehicle." In fact, the cited passage discloses only a standard accelerometer crash sensor that senses provides a signal of the acceleration of the vehicle itself and provides no detection of an external object. **[A(1), A(2), A(4)]** It is further defective because Examiner's cited passage in Breed fails to disclose the step of "calculating a future path of the vehicle." The acceleration signal is not used to <u>calculate any future path of the vehicle</u>; it is disclosed as only indicating whether or not a crash is in progress. **[A(1), A(2), A(4)]** It is further defective because Examiner's cited passage in Breed fails to disclose the step of "determining a likelihood of a collision between the vehicle and an object based upon data received <u>from said object detector and the calculated future path of the vehicle</u>." The system of the cited passage cannot receive data from a non-existent object detector use a calculated future path of the vehicle that it does not calculate. **[A(1), A(2), A(4)]** It is further defective because Examiner's cited passage in Breed fails to disclose the step of "deploying a <u>reversible</u> physical safety countermeasure within the vehicle <u>before the collision</u> and <u>dependent upon said determining step</u>." The airbag disclosed by the cited passage is not a <u>reversible</u> physical safety countermeasure <u>as defined by applicant's invention</u>. In addition, the system of the cited passage further cannot deploy any countermeasure <u>before</u> the collision when it is only able to determine the need after detecting that <u>the collision has begun</u>. Furthermore, the system of the cited passage cannot base a deployment decision on a <u>determining step</u> that is not performed. **[A(1), A(2), A(3), A(4)]**

The rejections of **claims 17 – 21** share the defects of the rejection of their independent parent claim 16.

The rejection of **claim 22** shares the defects of the rejection of its independent parent claim 16 and is further defective because neither the cited passage nor any other passage of the reference discloses that "the decision rating is calculated as an average of the factors." Applicants cannot find any disclosure of averaging factors in the cited passage, or anywhere else, in the Hu reference. **[D]**

The rejection of **claim 23** shares the defects of the rejection of its independent parent claim 16 and is further defective because neither the cited passage nor any other part of the Hu reference discloses "wherein the factors include at least one of an offset from lane center based missed distance, a ratio of projected lateral movement to required lateral movement, a radius of curvature of the vehicle, and a projected Y intercept. **[E]**

The rejection of **claims 24** shares the defects of the rejection of its independent parent claim 1.

The rejection of **claim 25** shares the defects of the rejection of its independent parent claim 1 and is further defective because the cited passage of Hu does not disclose "said sensing includes calculating a plurality of <u>location coordinates</u> and times of arrival of the vehicle at each of the coordinates. Accelerations are not "location coordinates." **[E]**

The rejection of **claims 26** shares the defects of the rejection of its independent parent claim 1 and is further defective because nothing in either of the Breed or Hu references discloses the recited factors "an offset from lane center based missed distance" as defined in applicant's application. **[E]**

The rejection of **claims 27** shares the defects of the rejection of its independent parent claim 1 and is further defective because nothing in either of the Breed or Hu references discloses the recited factors "a ratio of projected lateral movement to required lateral movement" as defined in applicant's application. **[E]**
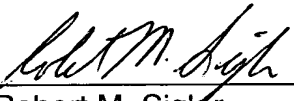
The rejection of **claims 28** shares the defects of the rejection of its independent parent claim 1 and is further defective because nothing in either of the Breed or Hu references discloses the recited factors "a radius of curvature of the vehicle" as defined in applicant's application. **[E]**

The rejection of **claims 29** shares the defects of the rejection of its independent parent claim 1 and is further defective because nothing in either of the Breed or Hu references discloses the recited factors "a projected Y intercept" as defined in applicant's application. **[E]**

Thus, the rejection of each of presented claims 1-10 and 16-29 fails as being unsupported by the passages of the cited references upon which Examiner relied. Applicant thus believes that all presented claims are allowable. If Examiner believes that the required support for rejection is found in other portions of the references, applicant respectfully requests that those portions be made clear, along with the reasons for such reliance (if not transparently clear) so that any remaining issues in the prosecution may be resolved in a more efficient manner. In many cases, however, it is clear to applicant that no such support can be found anywhere in the cited references.

Please charge any deficiencies and credit any overpayment to Deposit Account No. 50-0831.

Respectfully submitted,

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